ABSTRACT

IN-PIXEL MEMORY FOR DISPLAY DEVICES

Magnetoresistive random access memory (MRAM) is used to provide in-pixel memory circuits for display devices. A memory circuit (25) comprises two MRAMs (60, 62), each coupled to a respective input of a flip-flop circuit (64). A display device (1) is provided comprising a plurality of pixels (20) each associated with a memory circuit (25). A bit line (45) passes over and contacts a first MRAM (60) in a first direction and a second MRAM (62) in a second direction, the first and second directions being substantially opposite to each other. This provides opposite resistance states in the two MRAMs (60, 62). The bit line (45) does not pass over a word line (43), thereby avoiding or reducing overlap capacitance losses. The word line (43) is formed during a same masking stage as a gate line (44). The bit line (45) is formed during a same masking stage as a column line (54).

(Figure 4)